

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Richard E. Smalley et al. § Serial No: To Be Assigned
For: CARBON FIBERS FORMED FROM § (division of application
SINGLE-WALL CARBON § Serial No. 09/380,545)
NANOTUBES § Filed: CONCURRENTLY HEREWITH
Atty Dkt: 11321-P012USD11 § Group Art Unit: 1754 (anticipated)
§ Prior Examiner: Stuart Henderson
§ 703.308.2539

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**PRELIMINARY AMENDMENT ACCOMPANYING REQUEST FOR FILING
DIVISIONAL APPLICATION UNDER 37 C.F.R. § 1.53(b)**

Sir:

This paper accompanies a Request for Filing Divisional Application Under 37 C.F.R. § 1.53(b) and associated filing fee therefor ("the Request"). If the fee payment is missing or insufficient in amount, or if any other fees are determined to be due, the Assistant Commissioner, Commissioner, and/or the Director of the U.S. Patent & Trademark Office is/are hereby authorized to charge any such fees (or credit any overpayment) to Winstead Sechrest & Minick Deposit Account No. 23-2426, referencing matter number 11321-P012USD11.

IN RE: APPLICATION OF SMALLEY ET AL.
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37 C.F.R. § 1.53(b)

AMENDMENTS

In the Title

Please amend the title by replacing the present title with the following:

--METHOD FOR GROWING SINGLE-WALL CARBON NANOTUBES UTILIZING SEED MOLECULES--

In the Abstract

Please amend the abstract by replacing the present abstract with the following:

-- This invention relates generally to a method for growing single-wall carbon nanotube (SWNT) from seed molecules. The supported or unsupported SWNT seed materials can be combined with a suitable growth catalyst by opening SWNT molecule ends and depositing a metal atom cluster. In one embodiment, a suspension of seed particles containing attached catalysts is injected into an evaporation zone to provide an entrained reactive nanoparticle. A carbonaceous feedstock gas is then introduced into the nanoparticle stream under conditions to grow single-wall carbon nanotubes. Recovery of the product produced can be done by filtration, centrifugation and the like.--

In the Specification

Please amend the specification as noted on page 5, paragraph 11 of the Request by inserting before the first line of the specification the following:

--RELATED APPLICATIONS

This application is a division of co-pending prior U.S. patent application Serial No. 09/380,545, filed on September 3, 1999, entitled "CARBON FIBERS FORMED FROM SINGLE-WALL CARBON NANOTUBES," which is the 35 U.S.C. § 371 national application of International Application Number PCT/US98/04513 filed on March 6, 1998, which designated the United States, claiming priority to: provisional U.S. patent application Serial

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Number 60/067,325, filed on December 5, 1997; provisional U.S. patent application Serial Number 60/064,531, filed on November 5, 1997; provisional U.S. patent application Serial Number 60/063,675, filed on October 29, 1997; provisional U.S. patent application Serial Number 60/055,037, filed on August 8, 1997; provisional U.S. patent application Serial Number 60/047,854, filed on May 29, 1997; and provisional U.S. patent application Serial Number 60/040,152, filed on March 7, 1997. Each of the foregoing applications is commonly assigned to the assignee of the present invention and is hereby incorporated herein by reference in its entirety.

This application discloses subject matter related to the subject matter of U.S. patent application Serial Number 10/000,746, filed on November 30, 2001 in the name of Daniel T. Colbert et al., entitled "MACROSCOPICALLY MANIPULABLE NANOSCALE DEVICES MADE FROM NANOTUBE ASSEMBLIES," which application is commonly assigned to the assignee of the present invention.--

In the Claims

Please amend the claims as follows:

- A. Please cancel claims 1-162 without prejudice or disclaimer to the subject matter thereof.
- B. Please add the following new claims 163-168:
 163. (New) A method for growing single-wall carbon nanotubes comprising:
 - (a) providing seed molecules comprising segments of single-wall carbon nanotubes, wherein the single-wall carbon nanotubes are attached to active catalyst particles, and wherein the active catalyst particles comprise a Group VI metal;
 - (b) subjecting the seed molecules and a carbon-containing feedstock gas to conditions capable of growing single-wall carbon nanotubes;
 - (c) growing single-wall carbon nanotube material; and
 - (d) recovering the single-wall carbon nanotube material.

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164. (New) The method of claim 163 wherein the Group VI metal is selected from the group consisting of chromium (Cr), molybdenum (Mo) and tungsten (W).

165. (New) A method for growing single-wall carbon nanotubes comprising:

- (a) providing seed molecules comprising segments of single-wall carbon nanotubes, wherein the single-wall carbon nanotubes are attached to active catalyst particles;
- (b) subjecting the seed molecules and a carbon-containing feedstock gas to conditions capable of growing single-wall carbon nanotubes, wherein the carbon containing feedstock gas comprises a substance selected from the group consisting of graphite particles and fullerenes;
- (c) growing single-wall carbon nanotube material; and
- (d) recovering the single-wall carbon nanotube material.

166. (New) The method of claim 165 wherein partial pressure of the carbon containing feedstock gas is in the range between 0.001 Torr to 1000 Torr.

167. (New) A method for growing single-wall carbon nanotubes comprising:

- (a) providing seed molecules comprising segments of single-wall carbon nanotubes, wherein the single-wall carbon nanotubes are attached to active catalyst particles;
- (b) subjecting the seed molecules and a carbon-containing feedstock gas to conditions capable of growing single-wall carbon nanotubes;
- (c) growing additional single-wall carbon nanotube material; and
- (d) recovering the single-wall carbon nanotube material, and wherein the single-wall carbon nanotube material comprises a felt.

168. (New) The method of claim 167 wherein the felt is a high-T_c superconductor.

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REMARKS

A. *Status of the Application.* Claims 1-162 are cancelled herein without prejudice or disclaimer to the subject matter thereof. Additionally, claims 163-168 have also been added herein. No new matter is added by the addition of these claims.

CONCLUSION

It is believed that each of the claims now pending in the present application recites elements neither taught nor suggested by the prior art. Further, it is believed that the application as a whole is in proper form and condition for allowance. If the Examiner believes that the application may be placed in even better condition for allowance, he or she is invited to contact the undersigned at the telephone number noted below. Alternatively, or in addition, if the Examiner believes that an Examiner interview would be beneficial, the Examiner is invited to note that the undersigned has ready access to the videoconferencing facilities of the South Central Intellectual Property Partnership at Rice University in Houston, Texas. The inventors and the undersigned would welcome the opportunity to use those facilities to clarify any issues deemed to remain unresolved.

Respectfully submitted,



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